

Montana Weather/Precipitation Summary

January 2015 by NOAA's National Weather Service Great Falls Montana

The first one-third of January was dominated by a ridge of high pressure along the North American West Coast. This brought cold and snowy conditions to much of Montana. The last two-thirds saw the ridge move onshore and bring mild and dry conditions to the state. The mean monthly flow (Fig. 1) did show an anomalously strong high pressure ridge centered along the coast.

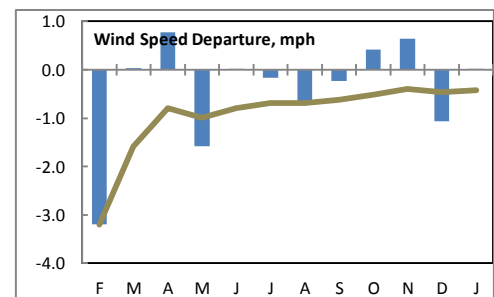
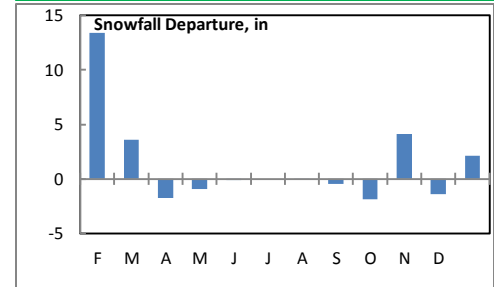
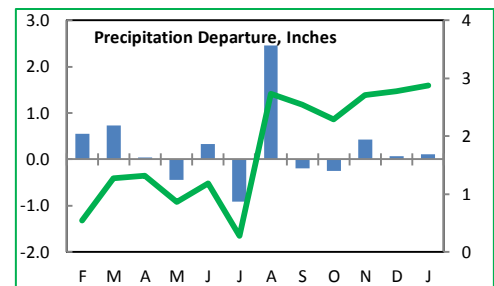
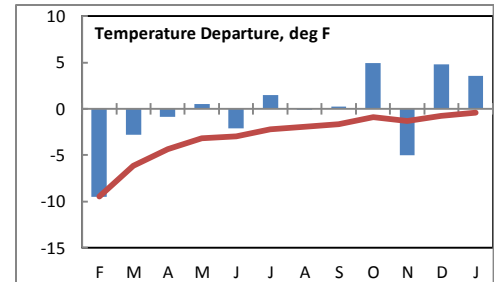
Statewide composite temperatures averaged 3.5°F above normal for the month. The temperature anomalies ranged from -1.0°F at Kalispell to +7.5°F at Dillon. The warmest average monthly temperature was 32.6°F at Livingston, and the coolest was 16.1°F at Plentywood and West Yellowstone. For the past 12-months, the statewide composite average temperature is 0.4°F below normal. Six of the past 12 months have recorded temperature averages below normal.

The monthly departure from normal for precipitation across Montana is shown in Figure 3. Above normal precipitation fell across much of the state, with pockets of below normal values in the northwest, southeast and east-central. The highest amount was 10.80-inches at Noisy Basin (Flathead County) and 4.35-inches near Heron. Statewide, this month averaged 0.89-inches, or 0.10-inches above normal. The statewide composite precipitation for the past 12 months is 2.88-inches above normal.

Snowfall was generally above normal. The statewide average was 12.0-inches, or 2.1-inches above normal. The heaviest amount was 40.5-inches at a point near Columbia Falls. Statewide seasonal snowfall averages are running 2.4 inches above normal.

The statewide average winds were at normal this month, ranking as the 30th calmest January of record. The statewide composite average was 9.2 mph (normal), with the 12-month average running 0.4-mph below average. The fastest average speed was 22.6 mph at Deep Creek RAWS, while Livingston recorded an average of 19.2 mph. The fastest measured gust of the month, 85 mph, occurred west of Choteau on the 18th.

Refer to NCDC's State of the Climate report for the latest monthly discussion: <http://www.ncdc.noaa.gov/sotc/>.



Jan 1-13

Below normal temperatures dominated during this period. Temperature averages were as much as 25 to 30 degrees below normal. Some areas also received heavy snowfall. West of the divide and areas east of the divide from Cut Bank, through Great Falls and Billings also saw heavy snowfall. After a dry December, even portions of the northeast picked up heavy snowfall during this period. During a 2-day period on the 4th and 5th, Bigfork measured 27". Roundup and Essex picked up 12 inches and portions of Great Falls picked up 15 inches. A warming period along the continental divide pushed wind gusts to 68 mph west of Choteau on the 7th. High winds in the northeast brought blizzard conditions on the 8th. Another round of heavy snow on the 11th produced 10 inches at Big Timber and 7 inches at Roundup.

Jan 14-31

The rest of the month was generally dry. There were periods of strong winds and a period of very warm temperatures. Warmer air and windy conditions produced gusts to 66 mph at Pendroy and 59 mph south of Malta on the 16th. It was windy again on the 18th. Gusts reached 85 mph west of Choteau, 83 mph at Two Medicine and 76 mph at Babb. Ahead of some the warmest air of the month, gusts reached 71 mph west of Choteau. On the 25th, the first of three days of record warmth began. A strong ridge of high pressure and warm air pushed the temperature to record levels at Dillon and Helena. Helena tied their all-time January temperature of 63°F, while Dillon reached 57°F, their second warmest January temperature of record. The warmth persisted and spread over the state on the 26th. Record highs were recorded from Dillon and Butte to Glasgow. Rapelje and Yellowtail Dam reached 71°F, for the warmest temperature of the month, and the warmest January temperature in Montana since 2005. This also set a daily extreme value for the state. This exceeded the old record of 63°F set at Colstrip in 2006. Again on the 27th, record temperatures were recorded. Records were set from Dillon to Glasgow. The warmest reading was 70°F at Broadus. This set a new daily statewide record as well, exceeding the old record of 64°F at Ballantine set in 1935. The warmth came to an abrupt end. On the 31st, a cold front pushed across the state dropping temperatures below zero over much of north central Montana. Snowfall up to four inches fell at Fort Benton and near Great Falls.

The extreme range of 106-degrees, from 71°F to -35°F is the largest January temperature range in Montana since 2009.

The upper air temperature at 850 millibars (about 5000 feet above sea level) was 17.2°C at Great Falls on the evening of January 26, 2015. This was the warmest of record at this level in January. The old record was 15.2°C on the evening sounding of January 19, 2009. Upper air observations began in 1948.

Precipitation/convection

Severe convective weather occurred on zero days in January. This is normal for the month.

January summary information:

High Temperature	71°F at Rapelje & Yellowtail Dam (26 th)	Greatest Precip	4.35" at Heron
Low Temperature	-35°F at Brandenburg (7 th)		10.8" at Noisy Basin SNOTEL (Flathead)
Warmest Ave Temp	32.6°F at Livingston	Peak Wind Gust	85 mph west of Choteau (18 th)
Coollest Ave Temp	16.1°F at Plentywood & West Yellowstone		
Range of Temp departures	-1.0°F at Kalispell to +7.5°F at Dillon	Highest Ave Wind	19.2 mph at Livingston 22.6 mph at Deep Creek
21 city mean monthly Temperature/Normal	24.0/20.5F 3.5F above normal. 28 th warmest of record (since 1880). 78 th percentile. Oct-Jan 30.9/27.9 3.0F above normal. 37 th warmest of record.	20 city mean monthly wind speed/Normal	9.2 mph/9.2 mph; 30 th calmest of record (since 1936). 38 th percentile. Oct-Jan 9.0 mph/9.0 0.0-mph above normal. 21 st calmest of record.
22 city mean monthly precipitation/Normal	0.89/0.79" – 112% of normal. 58 th wettest of record (since 1880). 56 th percentile. Oct-Jan 3.87"/ 3.53" – 0.34" above normal. 48 th wettest of record.	20 city mean monthly Snow/Normal	12.0"/9.9"; 47 th snowiest of record (since 1880). 64 th percentile. Oct-Jan 34.4"/31.4"; 3.0" above normal. 41 st snowiest of record.

Historical Rank of Precipitation (inches) for the Current Month and Water Year to Date

Location	Jan	% of Norm	Rank	Pcntl	Oct 1 – Jan 31	% of norm	Rank	Pcntl	Years
Baker	0.28	150%			1.72	80%			17
Billings	1.09	135%	98	84	2.66	76%	55	48	114
Belgrade	0.22	43%	15	18	2.15	74%	25	31	78
Butte	0.17	36%	15	12	2.56	108%	69	57	121
Cut Bank	0.64	320%	91	83	3.17	264%	100	93	108
Dillon	0.00	0%	1	0	1.16	73%	24	31	75
Glasgow	0.80	216%	98	82	2.06	107%	65	55	117
Great Falls	1.01	198%	93	75	3.96	158%	106	86	123
Havre	1.30	394%	124	91	2.87	165%	99	73	135
Helena	0.64	178%	86	62	2.92	151%	94	68	137
Jordan	0.80	348%			1.99	111%			17
Kalispell	2.41	181%	114	93	8.49	159%	114	94	121
Lewistown	0.61	107%	56	46	2.80	91%	42	35	119
Livingston	0.54	110%	68	59	2.48	87%	39	34	112
Miles City	0.22	69%	39	28	1.23	64%	27	19	138
Missoula	1.22	144%	89	64	6.52	170%	121	90	135
Mullan Pass	4.80	85%	35	47	20.40	113%	48	64	74
Wolf Point	0.07	23%			0.64	35%			17
Glendive	0.53	147%	79	66	2.22	99%	65	56	116
Sidney	0.26	63%	31	40	2.00	78%	36	47	75
BZN-MSU	0.53	64%	38	28	4.93	106%	98	72	136

Rankings and Percentiles are 1=driest, higher numbers=wetter.

For an automated version of this chart, updated daily, go to

<http://www.wrh.noaa.gov/tfx/dx.php?wfo=tfx&type=&loc=products&fx=PCPNTOTALS>

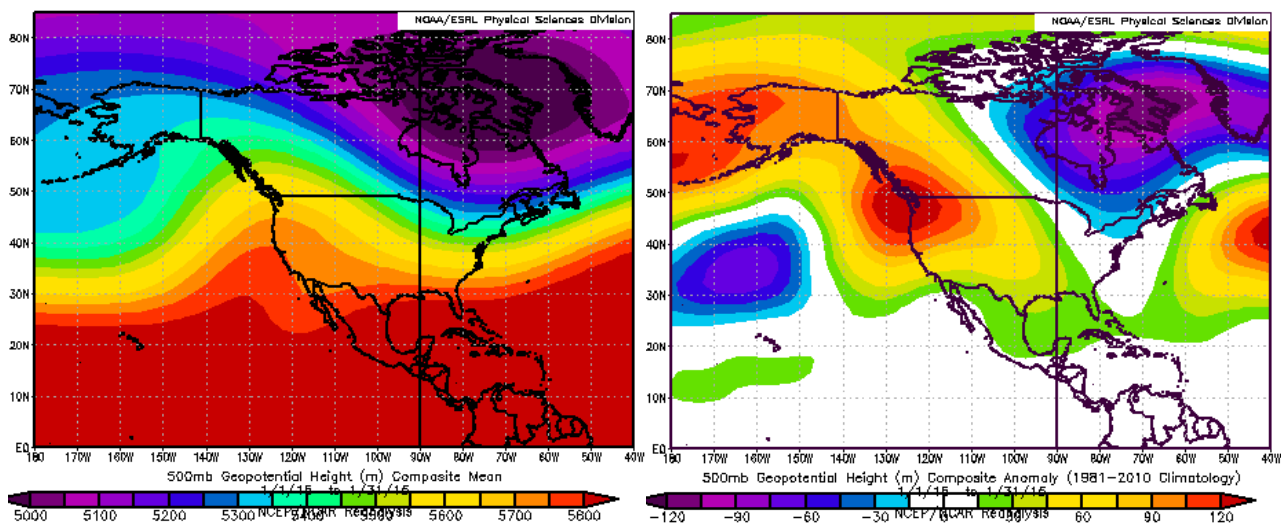


Figure 1. Mean flow at 500 millibars (~18,000 ft) for this month (top-left) and departure from normal (top-right).

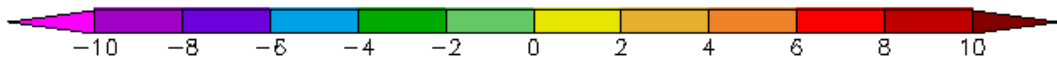
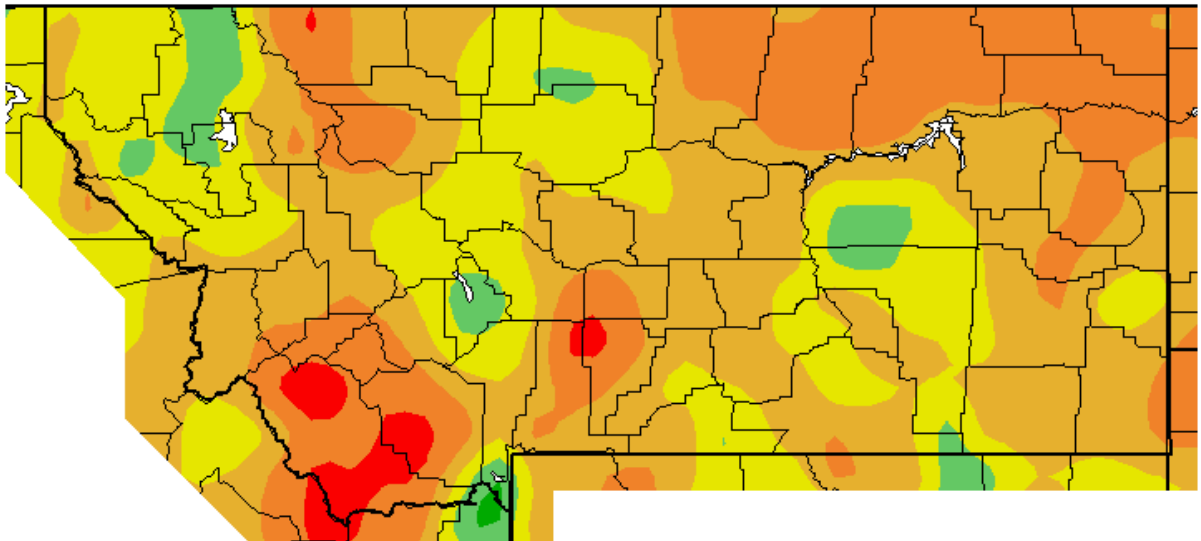


Figure 2. January 2015 temperature departures from normal (°F) (Western Region Climate Center).

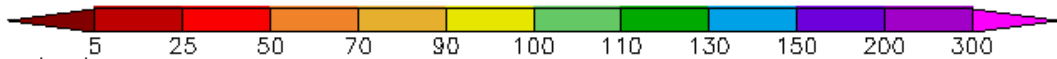
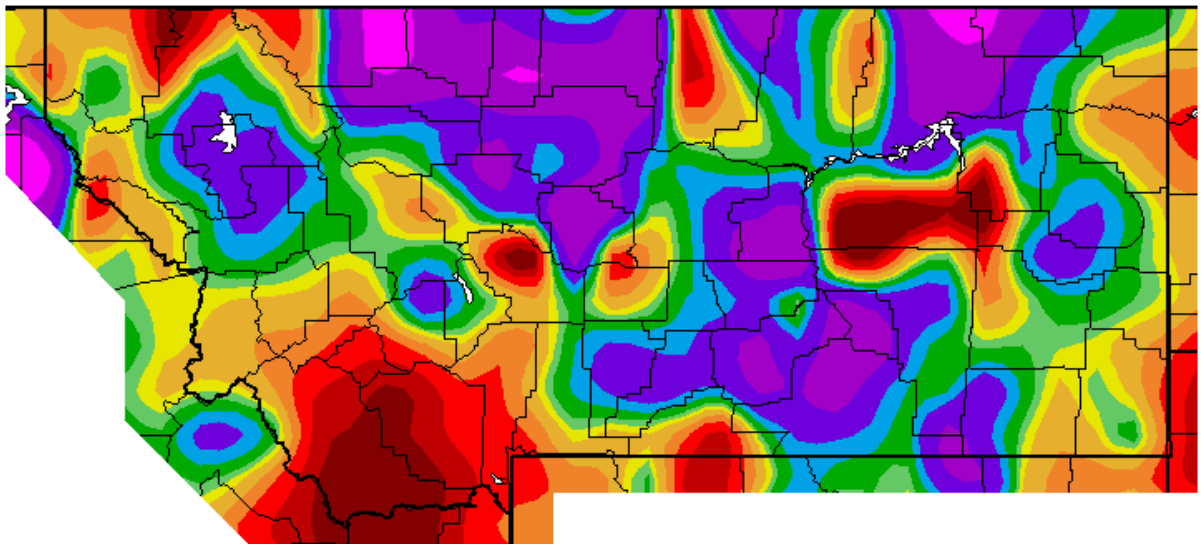


Figure 3. January 2015 precipitation departures from normal (percent) (Western Region Climate Center).

For a state map of % of normal water year precipitation (updated around the 7th of each month), go to:
<http://www.wrh.noaa.gov/tfx/climate/monthlysum/climatesum.php?wfo=tx>

For the latest information on mountain snowpack from the NRCS, go to: <http://www3.wcc.nrcs.usda.gov/snow/index.html>

For the latest U.S. Drought Monitor, issued weekly by the National Drought Mitigation Center, USDA and NOAA, go to:
<http://droughtmonitor.unl.edu/>

These data are preliminary and have not undergone final QC by NCDC. Therefore, these data are subject to revision. Final and certified climate data can be access at the National Climatic Data Center (NCDC) <http://www.ncdc.noaa.gov>. Many more links are on the Drought Information Page of the NWS Great Falls web site at <http://www.wrh.noaa.gov/tfx/main/drought.php?wfo=tx>. The climatological record for normals is 1981-2010. The ranking period for temperature, precipitation and snowfall is since 1880. The ranking period for wind speeds is since 1936. The ranking period for soil moisture is since 1995.